

ABSTRACT OF THE DISCLOSURE

There will be provided a mass spectrometer for detecting impurity in sample gas of a low flow rate. A mass spectrometer including: an atmospheric pressure chemical ionization source having a primary ionization part 28 for generating a primary ion by means of electric discharge of reagent gas, and a secondary ionization part 23 for generating an ion of the sample by a reaction of the primary ion and the sample; a mass spectrometric part 11 for performing mass spectrometric analysis of the ion generated; a mixing portion 33 for mixing the sample to be introduced into the secondary ionization part with dilution gas; and a mean 30 for controlling a flow rate of the dilution gas for flowing through the mixing portion; and a mean 12-1 or 12-2 or 12-3 for controlling a flow rate of the sample gas, wherein mixed gas obtained by mixing the sample with the dilution gas is introduced into the secondary ionization part and the sample is ionized.